

China

Trilemma Rank
51

Trilemma Score
64

Balance Grade
BBD

In September 2020, Chinese President Xi Jinping announced CO2 emissions would peak before 2030 and China would achieve carbon neutrality before 2060 (dubbed as the “30-60” target). With this long-term net carbon zero goal, the “sustainability” leg of the “Trilemma Balance” is expected to become increasingly important in the coming years. There have been many activities on-the-ground to put China in the direction of “net carbon zero”. For example, the state-owned power generation companies have started to shift their CAPEX investment plans more towards large scale wind and solar capacity; the grid companies are exploring how to adapt their grid planning and investment to cater for a large amount of renewable sources in the system; many energy companies have also started to put more budgets in place for research and development (R&D) for low carbon technologies like blue/green hydrogen.

Population
1397.7 (million)

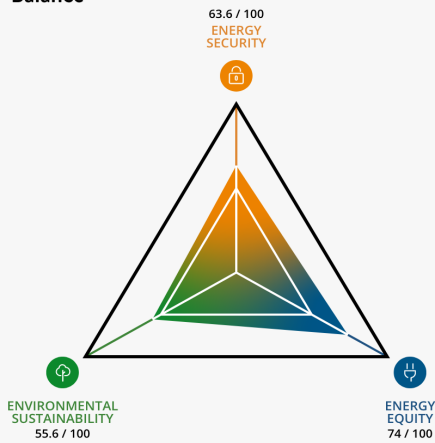
Land Area
9388.2 (thousand sq. km)

GDP Per Capita
10,262 (PPP US\$)

Industrial Sector
39.0 (% of GDP)

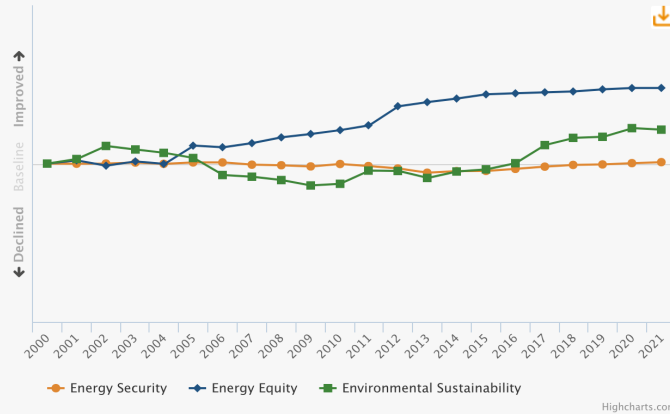
GDP Growth
6.1 (annual %)

Balance



Historical Trilemma Scores

Trend lines track the country's performance in each dimension, beginning with a baseline of 100 in the year of 2000



Trends and Outlook

The move towards “more sustainable” energy system is also with many challenges. In the past few years, the inability to reconcile cost and sustainability has caused several challenges to a greener future for China. In 2016-2020, the central government focused on reducing cost of power for the end-users, and it used a top-down approach to force the reduction of retail power tariff for commercial and industrial users as a “mini” fiscal expansionary measure. General commercial and industrial tariff was reduced by about 40% from 2016 to 2020. Meanwhile, existing solar and wind capacities require subsidies, and the much faster than expected renewable capacity expansion means that the amount of subsidies has increased exponentially. The construction of more expensive flexible capacity is also required to deal with the renewable energy intermittency. Thus, the inherent cost of power supply has increased in the past five years. The misalignment of tariff reduction and cost increase has led to several challenges in the solar and wind sectors, including delay in subsidy payments for existing solar and wind capacity owners, lack of flexible capacity in the grid and renewable curtailment. CAPEX investment of the grid companies has also reduced in the past few years. Without a shift in the “tariff/cost” policy, the reduced grid investment and the lack of flexible capacity can become key barriers for faster solar and wind capacity expansion in the coming years.

On energy security, China continues to build up its capability along the energy value chain and expand strategic reserves for key energy sources. As the electrification of the economy continues and the power sector moves to be more based on sustainable energy (solar, wind, hydro and nuclear), its energy security will likely continue to improve.

Key Metrics

Metrics are determined relative to other countries, with a full bar representing a score of 100.

